Amendments to Stormwater Regulations

September 2018

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Summary

- Require Stormwater Storage for New Single Family Houses and Additions 400sf or more in Footprint Expansion
  - 0 to 250cf of Storage Plus Any Required BMP Storage
  - Based on Net Change in Impervious Area
- Require 50cf Stormwater Storage/Infiltration System For New Sump Pumps Installed with a New Foundation

Issue

Code-Compliant Development Activity Creates Stormwater Runoff Which Sometimes Negatively Impacts Adjacent Properties

Objectives & Desired Outcomes

1. Mitigate the Negative Impacts of Stormwater Runoff
2. Permitting Process Which Accommodates Residential Renovation & Redevelopment

Objectives & Desired Outcomes

- “Do No Harm” - Residential Development Activity Should Not Make Stormwater Drainage Issues Worse Than the Previously Existing Conditions
- The Cost & Complexity of the Regulations Should Align with the Cost & Complexity of the Development Project
- Regulations Should be Applied Consistently & Predictably
- On-Site Improvements Should be Easy to Maintain
- “Tool Kit” - Regulations Should Offer Options for Residents to Comply

Causes of Negative Impacts

Changes in:

- Amount & Location of Impervious Area
- Amount & Location of Sump Pump Discharge
- Grading & Topography
- Runoff Coefficient of the Surface (Soil Compaction, Vegetation)

Challenges

- Lack of Stormwater Infrastructure in Some Areas
- Development Pressures in These Areas
- Properties Subdivided Prior to Regulations
- Soil Conditions (Lack of Infiltration)
- Topography
- Resident & Neighbor Expectations
- Achieving a Balance Between Objectives 1 & 2

Proposed Regulations

Require All New Single Family Houses and Additions of 400 s.f. Footprint Expansion or More to Provide Stormwater Storage:

Net New Impervious Area	**Storage Volume Required**
No Change or Reduction	---
1 to 699 s.f.	100 cubic feet
700 to 999 s.f	150 cubic feet + BMP Storage Volume
1,000 s.f to 1,999 s.f.	200 cubic feet + BMP Storage Volume
2,000 s.f. or more	250 cubic feet + BMP Storage Volume

Require All Sump Pumps Installed with a New Foundation to Discharge Into a 50 cubic feet Storage/Infiltration System

Proposed Regulations - Typical House Analysis

Net New Impervious	Storage Volume	Area Needed for Storage	Est. Cost
Negative to Zero	50 c.f.	50 s.f.	$7,000
1 to 699 s.f.	150 c.f.	150 s.f.	$10,000
700 to 999 s.f.	660 c.f.	660 s.f.	$25,000
1,000 to 1,999 s.f.	700 c.f.	700 s.f.	$25,000
2,000 s.f. or more	990 c.f.	990 s.f.	$30,000

Proposed Regulations: 2016-2017 New Houses

Net New Impervious in s.f.	Number of Houses	Impervious Area Change in s.f.	Avg. Change in Impervious in c.f.	Storage per Current Regs in c.f.	Storage per Proposed Regs in c.f.
Negative	26	(10,670)	(410)	--	1,300
1 - 699 sf	62	27,559	445	--	9,300
700 - 999 sf	--	--	--	--	--
1,000 - 1,999sf	12	19,798	1,650	4,264	7,264
2,000 sf +	34	119,812	3,523	13,606	23,806
Total	**134**	**156,499**	**1,168**	**17,870**	**41,670**

Shallow Storage System

Shallow Storage System

Proposed Regulations - Results & Impacts

- Provides Improvement over Current Regulations
  - 2.3 Times the Amount of Storage Currently Required
  - 99% of New Houses Required to Provide Storage
- Provides Enhanced Stormwater Mitigation for All Properties
  - With or Without Connection to Stormwater System
  - All Soil Types
- Costs are Small Percentage of Total Project Cost ($7,000 to $30,000)
- Can be Provided Using Shallow Storage Construction Techniques
- Minimal Impact on Yard “Useability”
- Predictable, Easy to Calculate
- Low Administrative Burden
- Continues to Provide Incentives to Avoid Increases in Impervious Area

Previous Concepts - Concept 1

- Stormwater Detention Required for All New Houses and Major Additions
- Detention Basins to be Connected to the Public Stormwater System
- Extending the Public Stormwater System to be Required If System is Not Adjacent
- Recapture Agreements, Variations to Regulations & Village Financial Participation to be Used to Facilitate this Approach

Not Pursued Because

- Stormwater Infrastructure Not Well Suited for Recapture Agreements
- Variation Process Likely to Result in Deciding How Much Cost is Too Much on a Project by Project Basis
- Village Financial Participation Would be Expensive & Would Cause Reprioritization of Stormwater Utility Plan

Previous Concepts - Concept 2

- Stormwater Detention Required for All New Houses and Major Additions
- 100% Storage Volume Required When a Basin can be Connected to the Public Stormwater System by Gravity
- 110%-150% Volume Required When a Gravity Connection is Not Feasible

Not Pursued Because

- Excessive Burden Placed on New House and Major Addition Construction
- Concern That a High Percentage of Basins to be Constructed Would Not Function as Designed due to Lack of Infiltration & High Water Tables
- High Cost of Compliance

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